Amendments to the Claims:

Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Canceled)

2. (Previously presented) The method of claim 33, wherein said tissue specific ligand is conjugated to said ethylenedicysteine on both acid arms of the ethylenedicysteine.

3. (Previously Presented) The method of claim 33, wherein said radionuclide is ^{99m}Tc, ^{188}Re, ^{186}Re, ^{183}Sm, ^{166}Ho, ^{90}Y, ^{89}Sr, ^{67}Ga, ^{68}Ga, ^{111}In, ^{183}Gd, ^{59}Fe, ^{225}Ac, ^{212}Bi, ^{211}At, ^{64}Cu or ^{62}Cu.

4. (Previously Presented) The method of claim 3, wherein said radionuclide is ^{99m}Tc.

5. (Canceled)

6. (Previously Presented) The method of claim 33, wherein said tissue specific ligand is an anticancer agent.

7. (Currently Amended) A ~~The~~ method of synthesizing a radiolabeled ethylenedicysteine derivative for imaging comprising the steps:

a) obtaining a tissue specific ligand, ~~claim 6,~~ wherein the tissue specific ligand is an ~~said~~ anticancer agent is selected from the group consisting of methotrexate, doxorubicin, tamoxifen, paclitaxel, topotecan, LHRH, mitomycin C, etoposide tomudex, podophyllotoxin, mitoxantrone, camptothecin, colchicine, endostatin, fludarabin, gemcitabine and tomudex;

a) admixing said ligand with ethylenedicysteine (EC) to obtain an EC-tissue specific ligand derivative; and

b) admixing said EC-tissue specific ligand derivative with a radionuclide and a reducing agent to obtain a radionuclide labeled EC-tissue specific ligand derivative, wherein the EC forms an N_2S_2 chelate with the radionuclide.

8. (Previously Presented) The method of claim 33, wherein said tissue specific ligand is a tumor marker.

9. (Previously presented) The method of claim 8, wherein said tumor marker is PSA, ER, PR, CA-125, CA-199, CEA AFP, interferons, BRCA1, HER-2/neu, cytoxan, p53, endostatin, a monoclonal antibody or an antisense tumor marker.

10. (Previously Presented) The method of claim 33, wherein the tissue specific ligand is a folate receptor targeting ligand.

11. (Currently Amended) A ~~The~~ method of synthesizing a radiolabeled ethylenedicysteine derivative for imaging comprising the steps:

a) obtaining a tissue specific ligand, ~~claim 10,~~ wherein the tissue specific ligand is a ~~the~~ folate receptor targeting ligand ~~is~~ selected from the group consisting of folate, methotrexate, and ~~or~~ tomudex;

c) admixing said ligand with ethylenedicysteine (EC) to obtain an EC-tissue specific ligand derivative; and

d) admixing said EC-tissue specific ligand derivative with a radionuclide and a reducing agent to obtain a radionuclide labeled EC-tissue specific ligand derivative, wherein the EC forms an N_2S_2 chelate with the radionuclide.

12. (Previously Presented) The method of claim 11, wherein the ligand derivative is ^{99m}Tc-EC-folate.

13. (Previously Presented) The method of claim 11, wherein the ligand derivative is ^{99m}Tc-EC-methotrexate.

14. (Previously Presented) The method of claim 11, wherein the ligand derivative is ^{99m}Tc-EC-tomudex.

15. (Previously Presented) The method of claim 33, wherein the tissue specific ligand is a tumor apoptotic cell targeting ligand or a tumor hypoxia targeting ligand.

16. (Currently Amended) A ~~The~~ method of synthesizing a radiolabeled ethylenedicysteine derivative for imaging comprising the steps:

a) obtaining a tissue specific ligand, ~~claim 15,~~ wherein the tissue specific ligand is a tumor apoptotic cell targeting ligand or a tumor hypoxia targeting ligand selected from the group consisting of annexin V, colchicine, nitroimidazole, mitomycin, and ~~or~~ metronidazole;

e) admixing said ligand with ethylenedicysteine (EC) to obtain an EC-tissue specific ligand derivative; and

f) admixing said EC-tissue specific ligand derivative with a radionuclide and a reducing agent to obtain a radionuclide labeled EC-tissue specific ligand derivative, wherein the EC forms an N_2S_2 chelate with the radionuclide.

17. (Previously Presented) The method of claim 16, wherein the ligand derivative is ^{99m}Tc-EC-annexin V.

18. (Previously Presented) The method of claim 16, wherein the ligand derivative is ^{99m}Tc-EC-colchicine.

19. (Previously Presented) The method of claim 16, wherein the ligand derivative is ^{99m}Tc-EC-nitroimidazole.

20. (Previously presented) The method of claim 16, wherein the ligand derivative is ^{99m}TC-EC metronidazole.

21. (Previously Presented) The method of claim 33, wherein the tissue specific ligand is glutamate pentapeptide.

22. (Previously Presented) The method of claim 21, wherein the ligand derivative is 99mTc-EC-glutamate pentapeptide.

23. (Previously Presented) The method of claim 33, wherein the tissue specific ligand is an agent that mimics glucose.

24. (Currently Amended) A ~~The~~ method of synthesizing a radiolabeled ethylenedicysteine derivative for imaging comprising the steps:

a) obtaining a tissue specific ligand, ~~claim 23,~~ wherein the tissue specific ligand is an ~~the~~ agent that mimics glucose ~~is~~ selected from the group consisting of neomycin, kanamycin, ~~getnamycin~~, gentamicin, paromycin, amikacin, tobramycin, netilmicin, ribostamycin, sisomicin, micromicin, lividomycin, dibekacin, isepamicin, astromicin, and ~~or~~ an aminoglycoside;

g) admixing said ligand with ethylenedicysteine (EC) to obtain an EC-tissue specific ligand derivative; and

h) admixing said EC-tissue specific ligand derivative with a radionuclide and a reducing agent to obtain a radionuclide labeled EC-tissue specific ligand derivative, wherein the EC forms an N_2S_2 chelate with the radionuclide.

25. (Previously Presented) The method of claim 24, wherein the ligand derivative is 99mTc-EC-neomycin.

26. (Previously Presented) The method of claim 24, wherein the ligand derivative is 99mTc-EC-kanamycin.

27. (Previously Presented) The method of claim 24, wherein the ligand derivative is 99mTc-EC-aminoglycosides.

28. (Previously Presented) The method of claim 24, wherein the ligand derivative is 99mTc-EC-gentamycin.

29. (Previously Presented) The method of claim 24, wherein the ligand derivative is 99mTc-EC-tobramycin.

30. (Previously Presented) The method of claim 2, further comprising a linker conjugating EC to said tissue specific ligand.

31. (Previously Presented) The method of claim 30, wherein the linker is a water soluble peptide, glutamic acid, aspartic acid, bromo ethylacetate, ethylene diamine or lysine.

32. (Previously presented) The method of claim 31, wherein the tissue specific ligand is topotecan, paclitaxel, raloxifen, etoposide, doxorubricin, mitomycin C, endostatin, annexin V, LHRH, octreotide, methotrexate or folic acid.

33. (Previously Presented) A method of synthesizing a radiolabeled ethylenedicysteine derivative for imaging comprising the steps:

a) obtaining a tissue specific ligand, wherein the tissue specific ligand is an anticancer agent, a tumor marker, a folate receptor targeting ligand, a tumor apoptotic cell targeting ligand, a tumor hypoxia targeting ligand, glutamate pentapeptide, or an agent that mimics glucose;

b) admixing said ligand with ethylenedicysteine (EC) to obtain an EC-tissue specific ligand derivative; and

c) admixing said EC-tissue specific ligand derivative with a radionuclide and a reducing agent to obtain a radionuclide labeled EC-tissue specific ligand derivative, wherein the EC forms an N_2S_2 chelate with the radionuclide.

34. (Previously Presented) The method of claim 33, wherein said reducing agent is a dithionite ion, a stannous ion or a ferrous ion.

35. (Previously presented) A method for labeling a tissue specific ligand for imaging, comprising the steps:

a) obtaining a tissue specific ligand, wherein the tissue specific ligand is an anticancer agent, a tumor marker, a folate receptor targeting ligand, a tumor apoptotic cell targeting ligand, a tumor hypoxia targeting ligand, glutamate pentapeptide, or an agent that mimics glucose;

b) admixing the tissue specific ligand with ethylenedicysteine (EC) to obtain an EC-ligand conjugate; and

c) reacting the conjugate with ^{99m}Tc in the presence of a reducing agent to form an N_2S_2 chelate between the ethylenedicysteine (with or without linker) and the ^{99m}Tc.

36. (Canceled)

37. (Previously Presented) The method of claim 35, wherein the reducing agent is a dithionite ion, a stannous ion or a ferrous ion.

38. (Previously Presented) A method of imaging a site within a mammalian body comprising the steps of administering an effective diagnostic amount of a composition comprising a 99mTc labeled ethylenedicysteine-tissue specific ligand conjugate and detecting a radioactive signal from the ^{99m}Tc localized at the site, wherein the tissue specific ligand is an anticancer agent, a tumor marker, a folate receptor targeting ligand, a tumor apoptotic cell targeting ligand, a tumor hypoxia targeting ligand, glutamate pentapeptide, or an agent that mimics glucose.

39. (Original) The method of claim 38, wherein the site is a tumor.

40. (Original) The method of claim 38, wherein the site is an infection.

41. (Original) The method of claim 38, wherein the site is breast cancer, ovarian cancer, prostate cancer, endometrium, heart, lung, brain, liver, folate (+) cancer, ER (+) cancer, spleen, pancreas, or intestine.

42.-51. (Canceled)

52. (Currently Amended) A ~~The~~ method of synthesizing a radiolabeled ethylenedicysteine derivative for imaging comprising the steps:

a) obtaining a tissue specific ligand, ~~claim 23,~~ wherein the tissue specific ligand is glucose or glucosamine;

d) admixing said ligand with ethylenedicysteine (EC) to obtain an EC-tissue specific ligand derivative; and

e) admixing said EC-tissue specific ligand derivative with a radionuclide and a reducing agent to obtain a radionuclide labeled EC-tissue specific ligand derivative, wherein the EC forms an N_2S_2 chelate with the radionuclide.

53. (Currently Amended) A ~~The~~ method of synthesizing a radiolabeled ethylenedicysteine derivative for imaging comprising the steps:

a) obtaining a tissue specific ligand, ~~claim 23,~~ wherein the tissue specific ligand is deoxyglucose;

f) admixing said ligand with ethylenedicysteine (EC) to obtain an EC-tissue specific ligand derivative; and

g) admixing said EC-tissue specific ligand derivative with a radionuclide and a reducing agent to obtain a radionuclide labeled EC-tissue specific ligand derivative, wherein the EC forms an N_2S_2 chelate with the radionuclide.

54. (Canceled).

55. (Currently Amended) A ~~The~~ method for ~~of claim 35, wherein the~~ labeling a tissue specific ligand for imaging, comprising the steps:

a) obtaining a tissue specific ligand, wherein the tissue specific ligand is deoxyglucose;

b) admixing the tissue specific ligand with ethylenedicysteine (EC) to obtain an EC-ligand conjugate; and

c) reacting the conjugate with ^{99m}Tc in the presence of a reducing agent to form an N_2S_2 chelate between the ethylenedicysteine (with or without linker) and the ^{99m}Tc.

56. (Withdrawn) A method of synthesizing a radiolabeled ethylenedicysteine derivative for imaging comprising the steps:

a) obtaining a tissue specific ligand;

b) admixing said ligand with ethylenedicysteine (EC) to obtain an EC-tissue specific ligand derivative; and

c) admixing said EC-tissue specific ligand derivative with a radionuclide and a reducing agent to obtain a radionuclide labeled EC-tissue specific ligand derivative, wherein the EC forms an N_2S_2 chelate with the radionuclide.

57. (Withdrawn) The method of claim 56, wherein the tissue specific ligand is an anticancer agent, a tumor marker, a folate receptor targeting ligand, a tumor apoptotic cell targeting ligand, a tumor hypoxia targeting ligand, glutamate pentapeptide, or glucose mimetic.

58. (Withdrawn) A method for labeling a tissue specific ligand for imaging, comprising the steps:

a) obtaining a tissue specific ligand;

b) admixing the tissue specific ligand with ethylenedicysteine (EC) to obtain an EC-ligand conjugate; and

c) reacting the conjugate with ^{99m}Tc in the presence of a reducing agent to form an N_2S_2 chelate between the ethylenedicysteine (with or without linker) and the ^{99m}Tc.

59. (Withdrawn) The method of claim 58, wherein the tissue specific ligand is an anticancer agent, a tumor marker, a folate receptor targeting ligand, a tumor apoptotic cell targeting ligand, a tumor hypoxia targeting ligand, glutamate pentapeptide, or glucose mimetic.

60. (Withdrawn) A method of imaging a site within a mammalian body comprising the steps of administering an effective diagnostic amount of a composition comprising a ^{99m}Tc labeled ethylenedicysteine-tissue specific ligand conjugate and detecting a radioactive signal from the ^{99m}Tc localized at the site.

61. (Withdrawn) The method of claim 60, wherein the tissue specific ligand is an anticancer agent, a tumor marker, a folate receptor targeting ligand, a tumor apoptotic cell targeting ligand, a tumor hypoxia targeting ligand, glutamate pentapeptide, or glucose mimetic.